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Serial No.	09/821,820
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Examiner Name	Beatriz Prieto
Group Art Unit	2142
Attorney Docket No.	100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTTOCOL DISTRIBUTED SYSTEM

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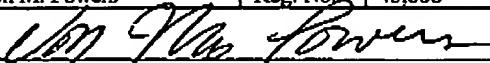
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The following documents are enclosed:

1. Appeal Brief (18pgs)
2. PTO-2038 Form for payment of the \$500 Appeal Brief fee

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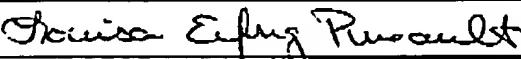
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant:	John Sabat Jr. et al.	Appeal Brief
Serial No.	09/821,820	
Filing Date	3/29/2001	
Group Art Unit	2142	
Examiner	Prieto, Beatriz	
Attorney Docket No.	100.763US01	
Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM		

On April 24, 2006, Appellants filed a notice of appeal from the final rejection of claims 1, 2, 5-11 and 14 set forth in the Office Action mailed December 23, 2005 (also referred to here as the "Final Office Action"). This Appeal Brief is accompanied by a fee in the amount of \$ 500.00 as required under 37 C.F.R. §1.17(c).

1. Real party in interest

The real party in interest in the above-captioned application is the assignee, ADC Wireless Solutions LLC.

2. Related appeals and interferences

There are no other appeals or interferences known to the Appellants that will have a bearing on the Board's decision in the present appeal.

3. Status of claims

Claims 1, 2, 5-11 and 14 were rejected in an Office Action mailed December 23, 2005 and claims 3, 4, 12 and 13 were objected to in that Office Action as being dependent upon a rejected base claim but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The rejection of claims 1, 2, 5-11 and 14 is the subject of this appeal.

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APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

4. Status of amendments

No amendment has been filed subsequent to the Office Action mailed December 23, 2005.

5. Summary of claimed subject matter

Pursuant to 37 C.F.R. §41.37(c)(1)(v), Applicant provides the following concise explanation of the subject matter defined in each independent claim with reference to the specification by page and line number and to the drawings by reference number. Applicant submits that the citations to the specification and drawings are not intended to be exhaustive and that other support for the various claims may also be found throughout the specification and drawings.

A. Claim 1

Claim 1 is directed to a system 10 that includes a first tenant base station 20 operated by a first wireless communication service provider and a second tenant base station 20 operated by a second wireless communication service provider. The second tenant base station 20 is co-located with the first base station. See page 7, line 14- page 8, line 20 and FIG. 1. The system further includes a transport medium interface 35 for converting radio frequency signals transmitted by the first and second base stations 20 and control messages relating thereto to a common transport medium 40. See page 10, line 20 – page 11, line 11 and FIG. 3.

The system 10 further includes a plurality of remotely located radio access nodes 50. See page 8, lines 22-25 and FIG. 1. Each radio access node 50 is associated with a predetermined portion of a total system coverage area. See page 12, line 15 - page 13, and FIGS 1 and 6. Each radio access node 50 is coupled to receive signals from the common transport medium 40. See page 1, lines 24-26 and FIG. 1. Each radio access node 50 contains at least a first and second tenant slice module 52 associated with the respective first and second tenant base stations. See page 9, lines 22 – 25.

The system 10 further includes a first tenant network management system 62a operated by the first wireless communication service provider and a second tenant

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

network management system 62b operated by the second wireless communication service provider. See page 8, line 27 – page 9, line 6 and FIG. 1. The system 10 further includes a common network management system 60 that forwards control messages from the respective tenant network management system to the intended tenant slice modules associated with respective ones of the radio access nodes 50 using the common transport medium 40. See page 8, line 27 – page 9, line 6 and page 15, line 21 – page 16, line 7 and FIG. 1.

B. Claim 7

Claim 7 is directed to a method for providing multiple wireless communication service providers with access to radio equipment distributed throughout a coverage area. The method includes the steps of accepting requests for distribution service from multiple tenant service providers. The requests specifying a desired air interface for wireless communication from among a plurality of available air interfaces, and an indication of which portions in the coverage area the particular air interface is to be supported. See page 9, lines 8-12, page 9, lines 18-20, page 12, lines 24-27, page 13, lines 4-6, and page 13, line 28 – page 14, 15 and FIGS. 1, 5 and 6.

The method further includes providing communication network connections 65 to network management system equipment for operating and controlling base station equipment 20 as provided by the multiple tenant service providers. See page 8, line 27 – page 9, line 6, page 10, lines 9-18 and FIG. 1. The method further includes a plurality of remotely located radio access nodes 50. Each radio access node 50 is associated with a predetermined portion of a total system coverage area. See page 12, line 15 – page 13, and FIGS. 1 and 6. Each radio access node 50 is coupled to receive signals from a common transport medium 40. See page 1, lines 24-26 and FIG. 1. Each radio access node 50 containing at least a first and second tenant slice module 52 associated with the respective first and second tenant service providers. See page 9, lines 22 – 25.

The method further includes installing, at a central location, a common network management system 60 for intercepting control message traffic from and to the network management systems 62a, 62b operated by the multiple wireless service providers

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

intended to control to radio access nodes 50 and routing such messages to a common control message handler. See page 8, line 27 – page 9, line 6 and page 15, line 21 – page 16, line 7 and FIG. 1.

C. Claim 10

Claim 10 is directed to a system 10 that includes a first tenant network access device specified by a first communication service provider and a second tenant network access device specified by a second communication service provider. See page 16, line 9-23, and FIG. 1. The system 10 further includes a transport medium interface 35 for converting radio frequency signals transmitted by first and second base stations 20 and control messages relating thereto to a common transport medium 40. See page 10, line 20 – page 11, line 11 and FIG. 3.

The system 10 further includes a plurality of remotely located network access nodes 50. See page 8, lines 22-25 and FIG. 1. Each network access node 50 is associated with a predetermined portion of a total network system coverage area. See page 12, line 15 - page 13, and FIGS. 1 and 6. Each network access node 50 is coupled to receive signals from the common transport medium 40. See page 1, lines 24-26 and FIG. 1. Each network access node 50 contains at least a first and second tenant slice module associated with the respective first and second tenant networks. See page 9, lines 22 – 25.

The system 10 further includes a first tenant network management system 62b operated by the first communication service provider and a second tenant network management system 62b operated by the second communication service provider. See page 8, line 27 – page 9, line 6 and FIG. 1. The system 10 further includes a common network management system 60 that forwards control messages from the respective tenant network management system to the intended tenant slice modules associated with respective ones of the network access nodes using the common transport medium 40. See page 8, line 27 – page 9, line 6 and page 15, line 21 – page 16, line 7 and FIG. 1.

6. Grounds of rejection to be reviewed on appeal

APPEAL BRIEF

Serial No. 09/621,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

Whether claim 7 fails to comply with the written description requirement of 35 U.S.C. §112, first paragraph?

Whether claims 1-2, 5-11, and 14 are anticipated under 35 U.S.C. §102 by Hamilton-Piercy et. al., United States Patent No. 5,802,173 (referred to hereinafter as "Hamilton")?

7. Argument

A. Rejection of claim 7 under 35 U.S.C. §112, first paragraph

i. The Applicable Law

35 U.S.C. § 112, first paragraph, states:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Whenever the issue arises, the fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed. *See, e.g., Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997). Possession may be shown in a variety of ways including description of an actual reduction to practice, or by showing that the invention was "ready for patenting" such as by the disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention. *See, e.g., Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 68, 119 S.Ct. 304, 312, 48 USPQ2d 1641, 1647

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

(1998); *Regents of the University of California v. Eli Lilly*, 119 F.3d 1559, 1568, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997); *Amgen, Inc. v. Chugai Pharmaceutical*, 927 F.2d 1200, 1206, 18 USPQ2d 1016, 1021 (Fed. Cir. 1991) (one must define a compound by "whatever characteristics sufficiently distinguish it").

ii. Analysis

The Applicants request reversal of the Examiner's rejection of claim 7 under 35 U.S.C. §112, first paragraph. The Examiner took issue with the following language from claim 7: "accepting requests for distribution service from multiple tenant service providers, the requests specifying a desired air interface for wireless communication from among a plurality of available air interfaces, and an indication of which portions in the coverage area the particular air interface is to be supported."

As an initial matter, Applicants point out that the text of claim 7 (except for minor amendments to correct informalities) was a part of the specification as originally filed and, as such, is a part of the specification to be analyzed in determining whether the written description requirement has been satisfied. It is respectfully submitted that the text of claim 7 itself (as originally filed) combined with, for example, the disclosure found at page 9, lines 8-12, and FIGS. 7-8 and related description thereof found at page 16, line 25 through page 19, line 15 (which at a minimum describe the communication mechanisms for accepting (FIG. 7) and not accepting (FIG. 8), such requests), would reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Accordingly, the undersigned respectfully submits the rejection of claim 7 under 35 U.S.C. §112, first paragraph, was improper and requests reversal of the Examiner's rejection.

B. Rejection of claims 1-2, 5-11, and 14 under 35 U.S.C. §102**i. The Applicable Law**

35 U.S.C. § 102 states in relevant part:

A person shall be entitled to a patent unless-

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763 US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

(b) the invention was patented or described in a printed publication in this or a foreign country or in a public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A claim is anticipated under 354 U.S.C. § 102 only if each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051,1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.* 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but identical terminology is not required. *In re Bond*, 910 F. 2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990).

Anticipation focuses on whether a claim reads on a product or process disclosed in a prior art reference, not on what the reference broadly teaches. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983). To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter. *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 37 U.S.P.Q. 2d 1618 (Fed Cir. 1996)

ii. Analysis

The Applicants request reversal of the Examiner's rejection of claims 1-2, 5-11, and 14 under 35 U.S.C. §102. The Hamilton reference does not teach every feature recited in the rejected claims.

Claim 1 recites, among other things, "a first tenant network management system operated by the first wireless communication service provider", "a second tenant network management system operated by the second wireless communication service provider", and "a common network management system that forwards control messages from the respective tenant network management system to the intended tenant slice modules associated with respective ones of the radio access nodes using the common transport medium."

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTTOCOL DISTRIBUTED SYSTEM

The Examiner has taken the position that the "optically connected microcell system" (OCMS) of Hamilton and the "coaxially connected microcell system" (CCMS) of Hamilton are "a first tenant network management system" and "a second tenant network management system", respectively, as recited in claim 1 of the present application. See Final Office Action, page 5, paragraph 10.

The portions of Hamilton cited by the Examiner contain no explanation as to why an "optically connected microcell system" or a "coaxially connected microcell system" is a "network management system" as set forth in claim 1. The cited portions of Hamilton include the following:

As the urban mobile radiotelephony network matures, the ability of a cellular service provider to locate, construct and operate additional conventional RBS sites becomes increasingly difficult and costly. Site access for maintenance purposes, which may be required at any time, also becomes a problem. Finding a site in a building at the desired geometric grid point or desired coverage location does not guarantee success.

Hamilton, column 3, lines 51-54 (and surrounding context).

The Optically Connected Microcell System (OCMS) or the Coaxially Connected Microcell System (CCMS) to be described is in effect a transparent low loss transmission system between RBS equipment, located at a common equipment site, and mobile radiotelephony units, which enables a much greater separation between radiotelephony mobile and the RBS equipment. Thus a multiplicity of Optically Connected Microcell Base Stations (OCMBS) and/or Coaxially Connected Microcell Base Stations (CCMBS) may be connected to the coaxial or optical fibre cable facilities throughout a community or urban centre to provide radiotelephony services, with the effect of providing virtual radio base stations at multiple sites, even though the radio base stations themselves may be concentrated in only a few, or even a single site.

Hamilton, column 8, lines 53-67.

In FIG. 1, a fibre optical link 209 is shown connecting the RBS 207 to an Optically Connected Microcell Base Station

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

(OCMBS) 210. This remote OCMBS extends the service area of the RBS 207 as described further below so as to enable it to provide a radio link with the mobile 206.

Alternatively a coaxial cable transport link 245 to a Coaxially Connected Microcell System (CCMS) could also provide access to a remote location with the appropriate radio interface to the mobile. By using such links to provide locations for what are effectively virtual radio base stations, i.e. locations for what will appear to a mobile transceiver to be the site of a base station, a number of radio base stations can be co-sited or warehoused at a single location or Radio Base Station Warehouse (RBSW) 208, and a multitude of OCMS 210 or CCMS 247 can be interconnected through it to provide radio links to mobiles.

Hamilton, column 11, lines 30-35 (and surrounding context).

These cited portions of Hamilton simply do not teach that either the "OCMS" or "CCMS" is a "network management system" as set forth in claim 1. In this regard, Applicants respectfully point out that the "MS" in the acronyms "OCMS" and "CCMS" refers to "microcell system" and not "management system" (as in "NMS").

The Examiner, in responding to the arguments set forth above, took the position that "[i]n this case, claimed terms "first tenant network management system systems[sic]" and "a second tenant network management systems[sic]", respectively, are systems." Final Office Action, page 8, paragraph 12. However, the Examiner provided no explanation or evidence as to why the words "network management" should be ignored in interpreting the term "network management system" as set forth in claim 1. That is, the interpretation set forth by the Examiner effectively deletes the words "network management" from the term "network management system" as recited in claim 1. This is improper since all words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Furthermore, it is respectfully submitted that the term "network management system" has an ordinary and customary meaning to one of ordinary skill in the art that is clearly different from a "microcell system" (for example, reflecting the difference

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

between an entity doing the management and an entity or entities that are to be managed). Indeed, Hamilton states that the "Optically Connected Microcell System (OCMS) or the Coaxially Connected Microcell System (CCMS) to be described is in effect a transparent low loss transmission system between RBS equipment, located at a common equipment site, and mobile radiotelephony units, which enables a much greater separation between radiotelephony mobile and the RBS equipment." Hamilton, column 8, lines 53-59 (emphasis added). That is, OCMS and the CCMS of Hamilton are transmission systems, not network management systems.

Claims 2, 5 and 6 all ultimately depend from claim 1. Therefore, the arguments set forth above with respect to claim 1 above apply to these claims as well.

Claim 7 of the present application recites, in part, "installing, at a central location, a common network management system for intercepting control message traffic from and to the network management systems operated by the multiple wireless service providers intended to control radio access nodes, and routing such messages to a common control message handler." The Examiner rejected claim 7, in part, using the same rationale as described above in connection with claim 1. Therefore, the arguments set forth above with respect to claim 1 apply to claim 7 as well.

Claims 8-9 depend from claim 7. Therefore, the arguments set forth above with respect to claim 7 above apply to these claims as well.

Claim 10 recites, in part, "a first tenant network management system operated by the first communication service provider", "a second tenant network management system operated by the second communication service provider", and "a common network management system that forwards control messages from the respective tenant network management system to the intended tenant slice modules associated with respective ones of the network access nodes using the common transport medium." The Examiner rejected claim 10 using the same rationale as described above in connection with claim 1. Therefore, the arguments set forth above with respect to claim 1 apply to claim 10 as well.

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

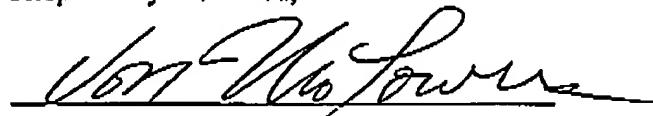
Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

Claims 11 and 14 depend from 10. Therefore, the arguments set forth above with respect to claim 10 above apply to these claims as well.

Accordingly, the undersigned respectfully submits that the rejection of claims 1-2, 5-11, and 14 under 35 U.S.C. §102 was improper and requests reversal of the Examiner's rejection.

Respectfully submitted,

Date: 6-26-2006



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APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

CLAIMS APPENDIX

1. A system comprising:

a first tenant base station operated by a first wireless communication service provider;

a second tenant base station operated by a second wireless communication service provider, and co-located with the first base station; a transport medium interface for converting radio frequency signals transmitted by the first and second base stations and control messages relating thereto to a common transport medium;

a plurality of remotely located radio access nodes, each radio access node associated with a predetermined portion of a total system coverage area, and each radio access node coupled to receive signals from the common transport medium, with each radio access node containing at least a first and second tenant slice module associated with the respective first and second tenant base stations; and

a first tenant network management system operated by the first wireless communication service provider;

a second tenant network management system operated by the second wireless communication service provider;

a common network management system that forwards control messages from the respective tenant network management system to the intended tenant slice modules associated with respective ones of the radio access nodes using the common transport medium.

2. A system as in claim 1 where in the common network management system additionally filters forwarded messages to limit access by tenants to status and control information associated only with radio access node equipment operated by other tenants.

3. A system as in claim 2 wherein the common network management system further comprises: a statefull firewall configured such that the common network management

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

system appears to be an agent for interfaces to tenant network management systems, but appears as a client to open access system elements

4. A system as in claim 3 wherein the statefull firewall additionally comprises: a management information block for maintaining configuration information that defines access privileges that a particular tenant client may have.
5. A system as in claim 1 wherein the common network management system additionally comprises: a local database store containing information from poll and status information requests that the common network management system originates.
6. A system as in claim 5 wherein the common network management system additionally comprises: a poll and status request message interceptor, which intercepts messages from the tenant network management systems intended for the radio access nodes and attempts to respond from information contained in the local database.
7. A method for providing multiple wireless communication service providers with access to radio equipment distributed throughout a coverage area, the method comprising the steps of:

accepting requests for distribution service from multiple tenant service providers, the requests specifying a desired air interface for wireless communication from among a plurality of available air interfaces, and an indication of which portions in the coverage area the particular air interface is to be supported;

providing communication network connections to network management system equipment for operating and controlling a base stations equipment as provided by the multiple tenant service providers;

a plurality of remotely located radio access nodes, each radio access node associated with a predetermined portion of a total system coverage area, and each radio access node coupled to receive signals from a common transport medium, with each radio

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

access node containing at least a first and second tenant slice module associated with the respective first and second tenant service providers; and

installing, at a central location, a common network management system for intercepting control message traffic from and to the network management systems operated by the multiple wireless service providers intended to control to radio access nodes, and routing such messages to a common control message handler.

8. A method as in claim 7 wherein the common control message handler is a shared transport medium over which control messages are routed to the radio access nodes.

9. A method as in claim 7 wherein the common control message handler is process comprising the steps of: sending generic status query messages to the radio access nodes; storing, in a local information database, responses to the generic status query messages; and in response to control message originating from one of the tenant network management systems, obtaining status information from the local database.

10. A system comprising:

a first tenant network access device specified by a first communication service provider;

a second tenant network access device specified by a second communication service provider;

a transport medium interface for converting radio frequency signals transmitted by the first and second base stations and control messages relating thereto to a common transport medium;

a plurality of remotely located network access nodes, each network access node associated with a predetermined portion of a total network system coverage area, and each network access node coupled to receive signals from the common transport medium,

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

with each network access node containing at least a first and second tenant slice module associated with the respective first and second tenant networks; and

a first tenant network management system operated by the first communication service provider; a second tenant network management system operated by the second communication service provider;

a common network management system that forwards control messages from the respective tenant network management system to the intended tenant slice modules associated with respective ones of the network access nodes using the common transport medium.

11. A system as in claim 10 where in the common network management system additionally filters forwarded messages to limit access by tenants to status and control information associated only with network access node equipment operated by other tenants.

12. A system as in claim 10 wherein the common network management system further comprises:

a statefull firewall for filtering messages such that the common network management system appears to be an agent for interfaces of tenant network management systems, but appears as a client to open access system elements.

13. A system as in claim 12 wherein the statefull firewall additionally comprises:

a local data store for maintaining configuration information that defines access privileges that a particular tenant client may have.

14. A system as in claim 10 wherein the common network management system additionally comprises:

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

a local database for storing data taken from poll and status information requests originated by the common network management system.

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTOCOL DISTRIBUTED SYSTEM

EVIDENCE APPENDIX**There is nothing to present in the Evidence Appendix.**

APPEAL BRIEF

Serial No. 09/821,820

Attorney Docket No. 100.763US01

Title: OPERATIONS AND MAINTENANCE ARCHITECTURE FOR MULTIPROTTOCOL DISTRIBUTED SYSTEM

RELATED PROCEEDINGS APPENDIX**There is nothing to present in the Related Proceedings Appendix.**